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NOTES ON GEOGRAPHIC DISTRIBUTION

New records of *Sciaphila* Blume, *Sciaphila purpurea* Benth; *Triuris* Miers and *Triuris hyalina* Miers in the southern Amazon forest, Mato Grosso, Brazil

Márcia Cléia Vilela-Santos [1,2,3*], Luciane Barbosa [1,3], Quézia Cristina Santos [1,2,3], Franciele Bao [3,4] and Domingos Rodrigues [1,3]

1 Universidade Federal de Mato Grosso, Campus Universitário de Sinop, Instituto de Ciências Naturais, Humanas e Sociais. Av. Alexandre Ferronato 1200, Setor Industrial. 78557-267. Sinop, MT, Brazil.
2 Programa de Pós-graduação em Ecologia e Conservação da Biodiversidade na Universidade Federal do Mato Grosso, Campus Universitário de Sinop, Instituto de Biociências, Cuiabá, MT, Brazil.
3 Instituto Nacional de Ciência e Tecnologia de Estudos Integrados da Biodiversidade Amazônica – INCT-CENBAM/CNPq/MCT/. Av. André Araújo 2936, Aleixo. 69011-970. Manaus, AM, Brazil.
4 Universidade Federal do Mato Grosso do Sul, Campus Universitário de Campo Grande, Centro de Ciências Biológicas e da Saúde. Av. Costa e Silva s/nº Caixa Postal 549. 79070-900. Campo Grande, MS, Brazil.
* Corresponding author. Email: *marciacleia@gmail.com*

ABSTRACT: Herein, we report two new records of Triuridaceae (*Sciaphila purpurea* and *Triuris hyalina*) in the southern Amazon forest. These species were surveyed in the permanent plots (PPBio) using the RAPELD methodology. These new records extend the distribution of these species to Mato Grosso state.

Species of the Triuridaceae family are distributed, in tropical and subtropical regions with most species in the Austral-Asian region (Maas and Maas 2009). The family is composed by mycoheterotroph (saprophytes), small herbaceous plants lacking chlorophyll with a mostly well-developed rhizome, and usually found in dense and humid forests. They are often hidden under leaf mould at the base of large trees or along the banks of streams and in non-inundated forests, on sandy soils, and sometimes grow on termite nests (Martinez and Ramos 1989; Maas and Maas 2005).

Species usually have a creeping habit, and numerous scale-like leaves. The roots are filiform, very rarely coral-shaped, with or without root hairs. Stems are mostly unbranched and white, yellow, purple, or red. The leaves are simple, alternate, sessile, minute, entire, and scale-like. The racemose inflorescence is terminal, bracteate, and few to many flowered, and some species have bisexual flowers. Regardless of being unisexual or bisexual, the flowers are actinomorphic with 3-6 tepals that are white, yellow, purplish, or red in colour, basally connate, and often reflexed. The inner side of the flower is often densely papillate, the apex often provided with dense tufts of hairs (bearded) or long-tailed. Bisexual flowers have 2-6 free stamens and many free ovaries. Staminate flowers have 2-6 stamens, mostly attached to the tepals, except for *Triuris* Miers (Maas 1986; Gentry 1996; Gandolfo 2002; Cheek 2003; Rudall 2003).

In Brazil there are four genera reported for the family *Peltophyllum* Gardner, *Sciaphila* Blume, *Soridium* Miers, and *Triuris* Miers (Maas and Maas 2010). They occur in the Amazon, Cerrado, and Atlantic Forest biomes, and the state distribution of the family is: Acre, Amazonas, and Pará (north); Bahia (northwest); Mato Grosso, and Goiás (central-west); Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo (southeast); and Santa Catarina (south) (Maas 1986; Maas and Maas 2013). Currently the only genus recorded from Mato Grosso state is *Peltophyllum.*

In this study we report two new generic and species records of the Triuridaceae in Mato Grosso state, represented by *Sciaphila* (*S. purpurea* Benth.) and *Triuris* (*T. hyaline* Miers.), respectively.

The data was collected from January 2010 to May 2011 in four localities of *terra firme* forest in northern Mato Grosso, Brazil (Figure 1). Individuals of Triuridaceae were collected in four permanent sampling localities: three in Claudia municipality, where the climate is dry (locality I: 11°34'54.0" S, 55°17'15.6" W, locality II: 11°35'20.3" S, 55°17'34.7" W in Continental Farm; locality III: 11°39'09.4" S, 55°04'54.6" W in Iracema Farm), and one in Cotrigaçu municipality, where the climate is wet (locality IV: 09°49'11,1" S, 58°15'31,4" W in São Nicolau Farm). This study was carried out in southern Amazonia as part of the Research Program in Biodiversity (PPBio), using the RAPELD methodology (see Magnusson *et al.* 2005; Costa and Magnusson 2010). Localities I, II and IV consist of 12 1-ha permanent plots, and locality III includes 8 plots. There is a minimum distance of 1 km between all permanent plots (40 x 250m) in each locality, and each plot follows a topographical contour to minimize internal soil variation (Magnusson *et al.* 2005; Costa and Magnusson 2010). Localities I, II and III are approximately 20 km apart, and locality IV is approximately 360 km away from the localities I, II, and III. We sampled 256 individuals of Triuridaceae on the trails connecting the plots and in proximity to a water body.

The *genus Sciaphila* Blume contains 37 species (Govaerts *et al.* 2012; Chantanaorrapint and Chantanaorrapint 2012), and occurs in tropical Asia and America with a few species in subtropical and temperate

regions (Maas and Weustenfeld 1998). *Sciaphila* are characterised by the elongated and often reddish stem, bearing a spicate or narrow racemose inflorescence of small multi-pistillate flowers, the fruits are densely clustered minute, round, reddish follicles. This genus is commonly found in association with or growing directly on terrestrial termite nests (Gentry 1996; Ribeiro *et al.* 1999). In Brazil this genus is represented by four species *S. albescens* Benth., *S. purpurea* Benth., *S. rubra* Maas, and *S. schwackeana* Johow. (Maas and Maas 2010). *Sciaphila* was previously reported in the north (Acre, Amazonas, and Pará states), northwest (Bahia), central-west (Goiás), southeast (Rio de Janeiro and São Paulo) and south (Santa Catarina). *Sciaphila purpurea* it reportedly distributed throughout tropical South America and in Brazil, it occurs in the north (Acre, Amazonas and Pará states), northwest (Bahia), central-west (Goiás), and southeast (Rio de Janeiro) (Maas and Maas 2010; Maas and Mass 2013).

The species *S. purpurea* Benth is recorded for the first time in Mato Grosso state in this study and 244 individuals were recorded (23 in locality I; 142 in locality II; 67 in locality III, and 12 in locality IV). **Material examined:** Brazil, Mato Grosso: municipality Claudia, Vilela-Santos, M.C.; Barbosa, L.F. Voucher: 2684 (CNMT).

The genus Triuris Miers is distributed from southern Mexico to South America (Vergara-Silva *et al.* 2003; Maas and Maas 2005). *Triuris* are characterised by mostly single (occasionally 2-3) mushroom-like, whitish flowers at the end of a leafless hyaline stem. The most distinctive feature of the flowers is the three long tails that hang down and spread out from the "cap" (Gentry 1996). In Brazil, this genus is currently distributed in Amazonas (north), and Espirito Santo, Rio de Janeiro and São Paulo (southeast) (Figure 2). This genus has only two species occurring in Brazil, *T. alata* Brade, restricted to the Atlantic Forest biome (Rio de Janeiro) and *T. hyalina* occurring in four state (Amazonas, Espírito Santo, Rio de Janeiro and São Paulo) (Maas and Maas 2010). *T. hyalina* is a widespread species occurring from Guatemala to southeastern Brazil (Maas and Maas 2005). In this study *T. hyalina* was recorded for the first time in central Brazil and 12 individuals were reported in locality I. **Material examined:** Brazil, Mato Grosso: municipality Claudia,Vilela-Santos, M.C.; Barbosa, L.F. Voucher: 356 and 3346 (CNMT).

Triuridaceae are a scattered and poorly collected family and new distributional records are essential to understand its true range. Understudied areas and regions under severe threat of deforestation should be particularly prioritised, such as areas south of Amazonia in Brazil, including the northern region of Mato Grosso state.

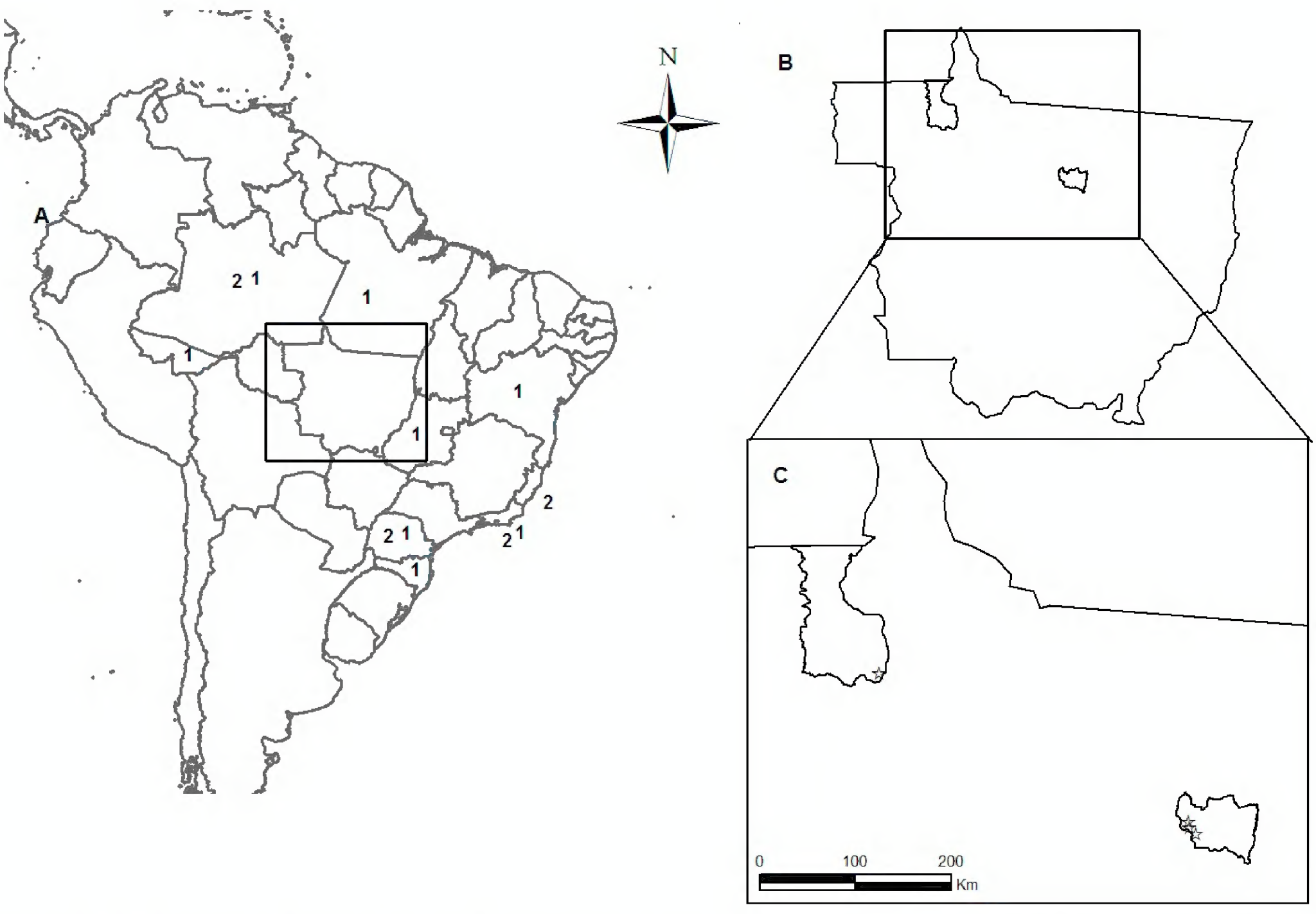

Figure 1. Current distribution of the species 1. *Sciaphila purpurea*, and 2. *Triuris hyalina* (A); magnification distributions for Mato Grosso state Centro Oeste (B) and Location of PPBIO research areas (C) in the southern Amazon, Mato Grosso state Brazil and the collection sites of the new records of Triuridaceae reported here.

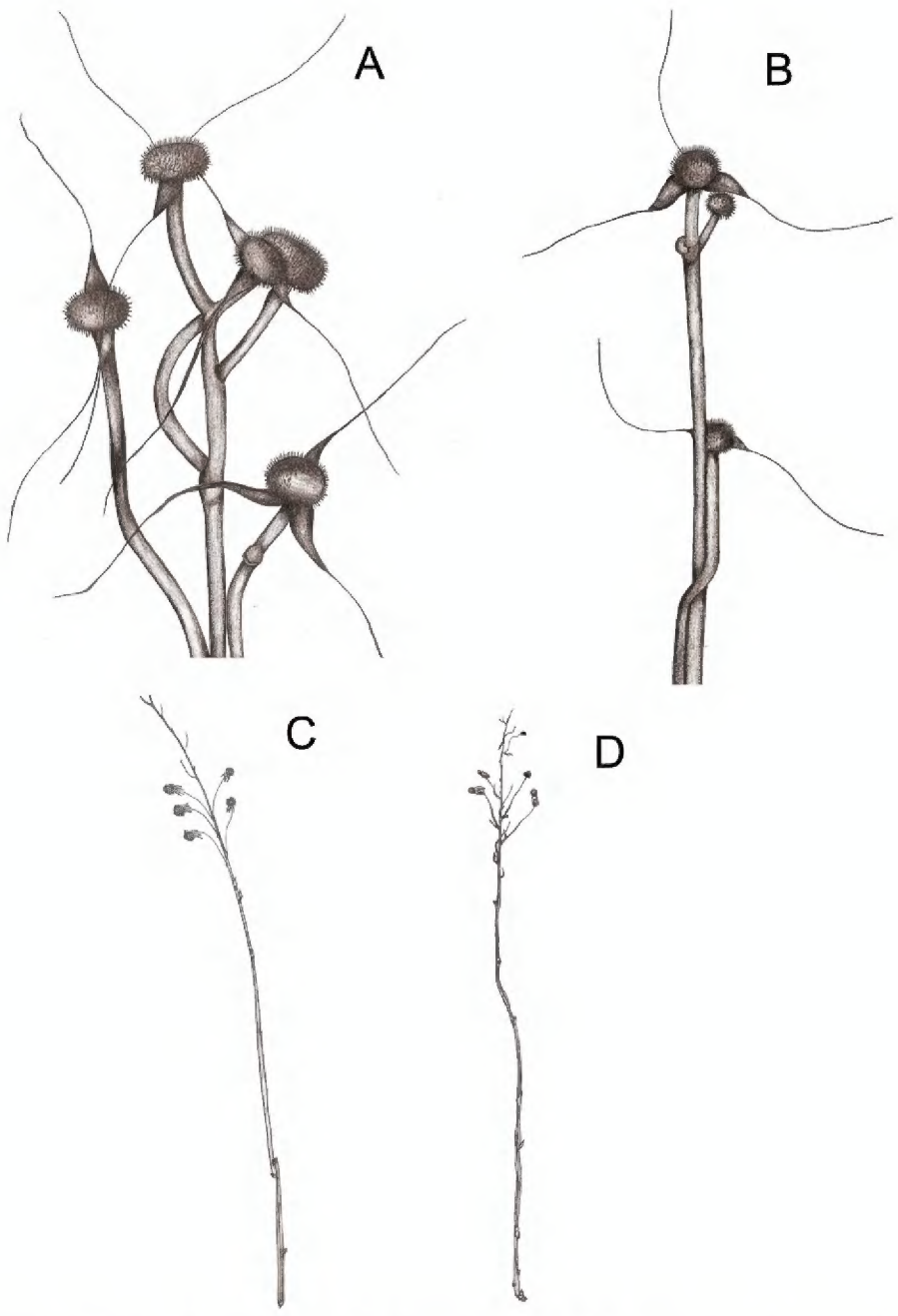

Figure 2. Mycoheterotrophic species A and B *Triuris hyalina* - Leaves simple, alternate, sessile, white flowers; C and D *Sciaphila purpurea* - Leaves simple, alternate, sessile, purplish flowers.

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